

REDUCED FUEL GAS EMISSIONS
HIGH FUEL GAS EFFICIENCY
LOW MAINTENANCE

GREENLINE HEATER. Innovative design combines maximum efficiency with minimum fuel usage.



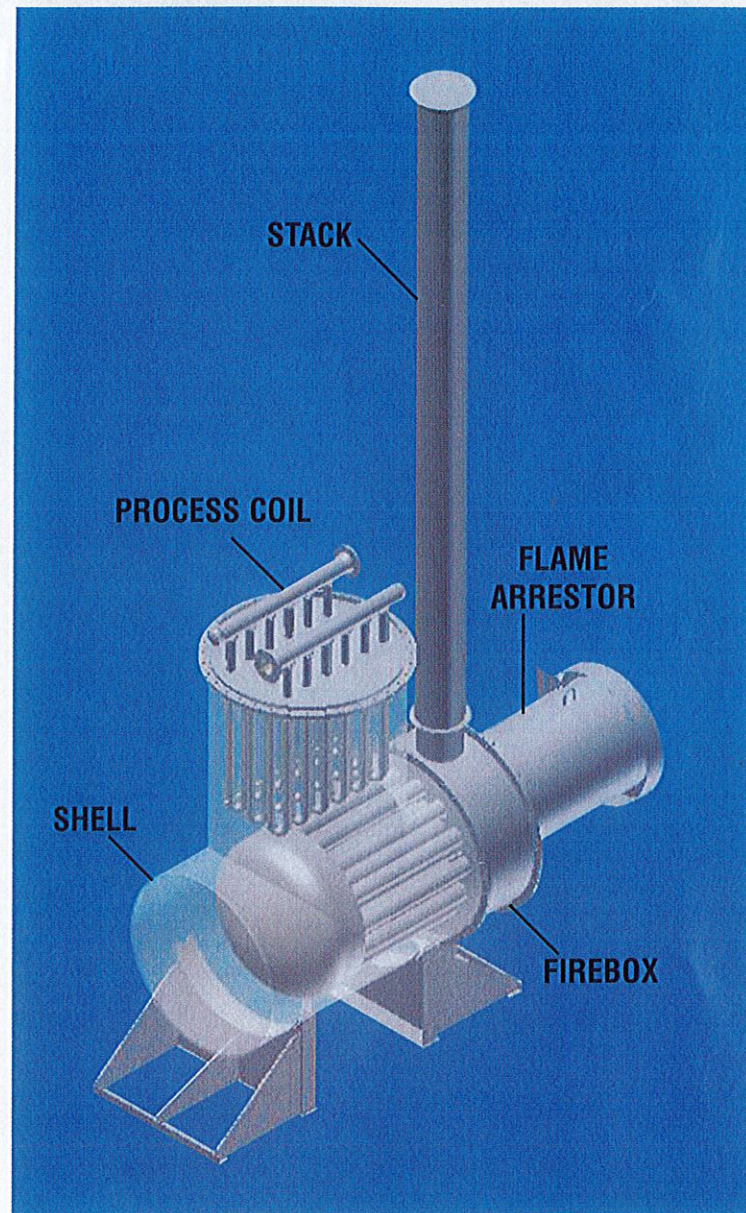
Black, Sivalls & Bryson
(Canada) Limited

GREENLINE offers efficient heat transfer and optimal fuel savings

FEATURES

- Safely heats gases or liquids over a wide range of pressures and temperatures without the need of a high-pressure shell.
- Short flame length significantly reduces flue gas emission levels.
- High thermal efficiency (85% is achievable) results in substantial fuel savings.
- Combustible or heat sensitive process fluids are completely isolated from the fire tube.
- Fire-Tube is always immersed in a clean non-fouling heat transfer medium.
- Fresh water with anti-freeze and/or corrosion inhibitor is the most common bath medium.
- Heat transfer oils or proprietary organic and inorganic heat transfer media can be used to obtain higher temperatures.
- Uniform heating of the transfer bath keeps the process coil tube wall temperature low. This reduces scaling inside the coil and eliminates hot spots that cause coil failure.
- A wide range of interchangeable flow coils is available for each heater size. This allows easy selection of the correct coil arrangement to satisfy heat transfer surface area and pressure drop requirements.
- The flow coils are supported independently of fire tubes and are easily changed.
- The Burner and Pilot assemblies are designed to match Fire-Tube capacity and provide safe dependable, efficient operation even under varying loads or adverse weather conditions.
- Temperature and other instrumentation & controls are carefully selected for dependable, trouble-free operations.
- Fuel gas preheat coils ensure dry fuel gas and prevent fuel line freeze-up when large pressure reductions are required of the fuel gas regulator.
- A wide selection of accessories is available.

- Process fluid flow coils are furnished in pipe sizes from 1" (25 mm) and larger. Design pressure is based on pipe sizes and schedules. Pressures are also limited by type of end connections. Coils are hydro tested to 1.5 times the maximum allowable pressure.
- Process coils can be designed to operate under pressure up to and in excess of 10,000 psig (690 barg). The heater shell usually operates at atmospheric pressure. There are no baffles to restrict heat flow. The result is faster warm-up and quick response of Fire-Tube heat output to meet the process demand.



OPERATIONS

The BS&B GREENLINE Heater consists of a horizontal Central Flue where the fuel gas is burned: a Fire-Tube that transfers heat from the burning fuel gas to the Water Bath, and a Process Flow Coil. Fuel gas is burned within the Central Flue and heats the Fire-Tube. The Fire-Tube heats the Water Bath and turns it into steam.

A process fluid such as oil, gas, water or other fluid products passes through the Process Flow Coil that is hung from the top flange cover as shown in the picture. Steam produced at the bottom chamber rises to the top chamber and condenses, thereby heating the fluid in the Process flow Coil.

Thermostatic controls maintain Water Bath temperature at the desired level by regulating the fuel gas supply to the Burner. 85% thermal efficiency is achievable.

TYPICAL APPLICATIONS ARE:

- Heating well-head gas prior to transmission pipeline entry.
- Preventing hydrate formation in a pipeline.
- Heating the well stream prior to pressure reduction in order to prevent the formation of hydrate or frost rings around buried pipe.
- Heating crude oil, propane or LPG vaporizer service, fractionation and stabilization reboilers.



The following items are included in a standard **GREENLINE** heater:

- 1 Flame arrestor housing
- 2 Pilot light assembly and drip pot
- 3 Dial face thermometer
- 4 Temperature controller (thermostat) for water bath
- 5 Fuel gas control valve
- 6 Fuel gas strainer
- 7 Fuel gas shutoff valve
- 8 Fuel gas pressure gauge
- 9 Fuel gas to preheat coil (1", 3000#)
- 10 Stack assembly weather cap and cleanout.
- 11 Well stream flow coil assembly
Code constructed and removable as per customer's choice
- 12 Fuel gas regulator
- 13 Pilot light safety shut down
- 14 High temperature bath control with ESD valve
- 15 High liquid level shutdown
- 16 Removable fire-tube assembly
- 17 Pressure relief valve
- 18 Bath liquid level gauge

The following accessories are offered as optional for the **GREENLINE** heater:

- 1 Fuel gas flow meter
- 2 Process fluid flow meter
- 3 Electronic Burner Management System
- 4 Stack spark arrestor
- 5 Choke assembly, adjustable, or pilot operated
- 6 Skid assembly
- 7 Low bath level shutdown
- 8 Split coils and outside piping
- 9 Different coil arrangement and sizes
- 10 Fuel gas scrubber
- 11 Product outlet temperature controller
- 12 Push button igniter
- 13 Automatic pilot light re-igniter
- 14 Insulated controls box
- 15 Skid building with room heater

INQUIRIES

Please furnish the following information on the operating conditions with your inquiry:

- 1 Flow rate in SCFD (SCMD).
- 2 Specific gravity of gas
- 3 Minimum inlet temperature
- 4 Maximum temperature at heater outlet, or after pressure regulator
- 5 Maximum inlet operating pressure
- 6 Allowable pressure drop through unit
- 7 Type of fuel to be used
- 8 Type of firing controls (Electric/Pneumatic)
- 9 Maximum design pressure
- 10 Downstream pressure if regulator is used



Black, Sivalls & Bryson
(Canada) Limited

2314 - 8 Street,
Nisku, Alberta, Canada
T9E 7Z2
Main Office PH: (780) 955-2888
Fax: (780) 955-8911

contact@bsb.ab.ca www.bsb.ab.ca